## REMARKS

Claims 7-9 have been amended for clarification purposes and claims 6, 11-33 have been canceled and new claims 34-46 have been added. These amendments are not intended to narrow the scope of these claims. The claims have been rewritten to place them in better form for examination and to further obviate the 35 U.S.C. 112 rejections set forth in the Office Action dated April 03, 2003. It is believed that none of these amendments constitute new matter. Withdrawal of these rejections is requested.

Claims 1, 7, 9 and 18 are objected to for the inclusion of a blank line where the ATCC Accession number should be. Applicant acknowledges the requirement for a deposit of biological material. Upon allowance of the claims in this application, the deposit will be made with the American Type Culture collection and the Accession number will be added in place of the blank line. Accordingly, withdrawal of this objection is requested.

Claims 8 and 18, are objected for informalities. Claim 8 has been amended as suggested by the examiner and claim 18 has been cancelled. Accordingly, withdrawal of this objection is requested.

Claim 6 is objected to under 37 CFR 1.75(c) as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant has cancelled claim 6. Withdrawal of this objection is requested.

Claims 6, 11-13, 15-17 and 19-33 are rejected under 35 U.S.C. 112 first paragraph as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the invention was filed, had possession of the claimed invention.

Applicant has canceled claims 6, 11-13, 15-17 and 19-33 in favor of new claims 34 to 46. Accordingly, withdrawal of this rejection is requested.

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Assignee, Harris Moran Seed Company presents its views in support of new claims 45 and 46 as well as reasons for canceling claims 21-23 and 33.

Indeed, a plant variety as used by the man skilled in the art of plant breeding means a plant grouping within a single botanical taxon of the lowest known rank which can be defined by the expression of the characteristics resulting from a given genotype for an inbred variety or combination of genotypes for an hybrid variety.

An inbred variety, or inbred line, has been created through several cycles of self pollination and is therefore considered as an homozygous line. The genome of such a line has identical alleles for all loci of homologous chromosomes and then contains the same linear sequences of genes, each gene being present in duplicate.

As long as the line is strictly self pollinated, the genome is stable and remains identical from generation to generation

Similarly, the genotype being expressed through the phenotype, as long as the arrangement and the organization of the genes remain stable through strictly controlled self pollination, the phenotype will remain stable as well. The same characteristics will then be expressed from generation to generation and will therefore be predictable.

The inbred line is then a combination of phenotypic characteristics issued from an arrangement and organization of genes created by the man skilled in the art through the breeding process. Claims on inbred lines per se relate to this invention

An hybrid variety is classically created through the fertilization of an ovule from an inbred parental line by the pollen of another, different inbred parental line.

Due to the homozygous state of the inbred parental genome, all gametes, whether pollen or ovules, produced by a given inbred line will carry a copy of each parental chromosome and be therefore genetically identical, carrying a copy of every gene as arranged and organized in the original genome of the parental inbred line.

Therefore, both the ovule and the pollen bring a copy of the arrangement and organization of the genes present in the parental lines. The genome of each parental line is present in the resulting hybrid (also known as F1 hybrid) in the

same arrangement and organization as created by the plant breeder in the original parental line.

The cross between two different inbred parental lines is therefore predictable, it will contain fifty percent of the genome of each inbred parental line.

In addition, and as long as the homozygosity of the parental lines is maintained, the resulting hybrid cross will be stable, whether genetically or phenotypically .

The F1 hybrid is then a combination of phenotypic characteristics issued from two arrangement and organization of genes, both having been created by a man skilled in the art through the breeding process. Each arrangement and organization of the genome is present in the F1 hybrid as it has been created by the breeder in the inbred.

For a plant breeder having the genetic and phenotypic knowledge of the inbred to be used, the creation on an F1 hybrid is therefore highly predictable. For example, dominant alleles present and expressed in an inbred line, will be brought by the gamete and expressed by the F1 hybrid.

Applicant therefore submits that new claims 45 and 46 on a hybrid squash seed wherein fifty percent of its genetic material originates from the gametes produced by the original inbred satisfies the provisions of 35 USC 112 first paragraph. Applicant further supports its new claims by paragraph 0013 of the specification where it is mentioned that the development of commercial squash hybrids require the development of homozygous inbred lines, the crossing of these lines and the evaluation of the crosses. For any man skilled in the art, i.e. a plant breeder, the result of such a cross of inbred lines will contain fifty percent of the genome of each inbred parental line.

When an F1 hybrid variety is used for further breeding, as mentioned in claims 21 to 23 or 33, also known as "progeny claims", the situation changes dramatically.

The genome of an F1 hybrid is composed by a copy of the genetic maternal material, bought by the ovule and a copy of the genome of the genetic paternal material, bought by the pollen.

The genome of the F1 hybrid can be reproduced constantly by crossing the inbred parental lines and is identical as long as the homozygoty of the inbred parental lines is safeguarded.

However, when the F1 hybrid itself produces gametes, the phenomenon that take place during the meiosis will lead to gametes that are different and totally unpredictable in the arrangement and organization of the genes carried out. As a result, the F2 generation, whether produced by auto-pollinating the F1 hybrid (the pollen produced by F1 hybrid fertilizes the ovule produced by the same F1 hybrid) or by inter-crossing two different F1 hybrids (the pollen produced by one F1 hybrid fertilizes an ovule produced by another, different F1 hybrid), will be genetically and phenotypically completely different from one resulting F2 plant to another but also from the parental F1 hybrids. Similarly, subsequent generation, usually known by a man skilled in the art as F3, F4, F5, ... Fn or "progeny", will be from one generation to the next, more and more genetically and phenotypically different because of the increasing number of meiosis phenomenon.

First, due to the chromosome recombination, the gametes created through the meiosis will have an arbitrary content of maternal or paternal origin of the chromosomes. The different chromosomes segregating independently, the gametes will all have the same number of chromosomes, but with a different ratio of maternal or paternal origin. This part of the meiosis only will lead to gametes, whether ovules or pollen, that have completely different genetic content. The larger the number of chromosomes, the more chromosome recombination occur.

Second, and in addition, the homologous recombination process will lead to the exchange, also known as crossing over of numerous DNA regions by their homologous DNA sequences from the homologous chromosome. This second part, resulting from the exchange between chromatids paired chromosomes, will complete the melange of the genes and lead to gametes that definitively have different genetic background. The genes are randomly rearranged and the genetic information carried by the gamete is then totally unpredictable.

As long as both copies of the chromosome have the same information, as it is the case for an inbred, these phenomena do not lead to any changes in the genomes and all gametes produced are identical.

But for an F1 hybrid which chromosomes copies originate from different inbreds, both processes will lead to different gametes, having parts of their genome originating from one inbred, other parts originating from the other inbred.

Therefore the arrangement and organization created by the plant breeder in the original parental line, that was also present in the F1 hybrid is lost when the gametes are produced. The arrangement and organization of the genome in

the gamete and also in the subsequent F2, F3, F4, Fn generation and progeny plant produced through fertilization and development of the embryo is no longer the work of the plant breeder, but is completely random.

Therefore, as the arrangement and organization created by the plant breeder in the original parental line is lost, the phenotypic expression of said genetic organization is lost and the F2, F3, F4, Fn plants, seeds and progeny after the initial F1 hybrid have nothing in common with the original inbred and F1 hybrid. There is no way to predict what can be the outcome of such a progeny, what can be its genetic organization or how this organization can be expressed by the plant.

As the integrity of the arrangement and organization of the genome is no longer present in the progeny and successive generations and as the genomic organization and the phenotypic expression resulting thereof are completely unpredictable, applicant therefore abandons claims 21 to 23 and 33.

If Examiner or her supervisors are interested in further discussing this subject, applicant agrees and is willing to meet with them at their convenience

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Claims 1-33 are rejected under 35 U.S.C 112 first paragraph as containing subject matter that was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or which is the most nearly connected to make and or use the invention. Applicant acknowledges the requirement for a deposit of biological material. Upon allowance of the related claims in this application, the deposit will be made with American Type Culture Collection. As stated in the specification on page 37, the seed deposit is being maintained by Harris Moran Seed Company at their Davis, California facility. The deposit will be available to the Commissioner during the pendency of this application and upon allowance of any claims, deposit of the squash seed will be made with the American Type Culture Collection.

The undersigned avers that:

a) access to the invention will be afforded to the Commissioner during the pendency of the application;

b) all restrictions upon availability to the public will be irrevocably removed upon

the granting of a patent;

c) the deposit will be maintained in a public depository for a period of 30 years or 5 years after the last request or for the enforceable life of the patent, whichever is longer;

d) a test of the viability of the biological material at the time of deposit; and

e) the deposit will be replaced if it should ever become inviable or when requested by ATCC.

Accordingly, withdrawal of this rejection is requested.

Claims 1-33 were rejected under 35 U.S.C 112 second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that applicant regards as the invention.

Claims 1, 7, 9 and 18 are indefinite in their recitation of ATCC accession number and "inbred 835" designation. As previously mentioned, applicant acknowledges the requirement for a deposit of biological material. Upon allowance of the related claims in this application, the deposit will be made with American Type Culture Collection and the ATCC number will be added.

Claim 6 has been cancelled.

Claim 7 as lacking antecedent basis for the limitation "the tissue". Applicant has amended claim 7 as suggested by the Examiner.

Claims 7 and 9 as indefinite in their recitation of "capable of expressing". Applicant has amended claims 7 and 9 as suggested by the Examiner.

Claim 18 has been cancelled.

The Examiner states Part (b) of claims 18 and 20 are meaningless. Applicant cancelled claims 18 and 20.

Claims 19, 21, 23, 29 and 33 are indefinite in their recitation of "an extended mid season harvest", "large plant", "average open habit", "medium green to dark green", "tolerant", "adapted to Eastern United States, Mexico, France and Italy". While applicant did not recite "large plant", Applicant cancelled claims 19, 21, 23, 29 and 33.

Claim 22 as indefinite. Applicant cancelled claim 22.

Claim 24-25 as indefinite in their recitation of a squash plant containing one or more transgene. Applicant cancelled claims 24-25 in favor of new claims 34 to 42.

Claims 27-28 as indefinite because they lack clear positive method steps, Applicant cancelled claims 27-28.

Claims 31 and 32 as lacking antecedent basis for the limitation "the gene", Applicant cancelled claims 31 and 32 in favor of new claims 43 and 44. Withdrawal of these rejections is requested.

Claims 6, 11-13, 15-17 and 19-33 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Miller et al.
Applicant has canceled claims 6, 11-13, 15-17 and 19-33. Accordingly, withdrawal of this rejection is requested. Applicant would like to note that while the squash deposited under ATCC Accession No. PTA 866 is susceptible to powdery mildew (column 3 line 31), the squash of the present invention is resistant. Withdrawal of this rejection is respectfully requested.

Claims 6, 11-13, 15-17 and 19-33 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Miller (US Patent 6,031,158) and Superak (US Patent 5,959,184). Applicant has canceled claims 6, 11-13, 15-17 and 19-33. Accordingly, withdrawal of these rejections is requested.

Claims 6, 11-13, 15-17 and 19-33 are provisionally rejected under the judicially created doctrine of obviousness type double patenting as being unpatentable over claim 6, 11-13, 15-17 and 19-33 of co-pending application No 10/082,707. While claims 6, 11-13, 15-17 and 19-33 have been cancelled, applicant would however submit that the two inventions, namely squash inbred line 835 and squash inbred line 833, are different and would lead to different hybrids, indeed while 835 is a mid season medium green zucchini summer squash, 833 is a mid season gray zucchini summer squash. Withdrawal of this rejection is respectfully requested.

In view of the above amendments and remarks, it is submitted that the claims satisfy the provisions of 35 U.S.C. 102, 103, 112 and the judicially created doctrine of

obviousness type double patenting and is not obvious over the prior art. Reconsideration of this application and early notice of allowance is requested.

| **RESPECTFULLY SUBMITTED,** | | | | | |
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